

Claims

1. Electric motor with an electromagnetic brake, especially for an angle grinder, with a stator (11) which has at least one pole pair (14), of which at least one pole (14) has a pole shoe (15) which points to the inside towards the rotor periphery and is surrounded by a stator winding (20), the pole (14) accommodating a brake means (22) for braking of the rotor (12) which comprises a brake element (23) which can be adjusted against the braking force (33) by the magnetic field of the stator winding (20), characterized in that the brake element (23) is made as a rocker which is exposed to the braking force (33) outside of the swivelling axis (28).

2. Electric motor as claimed in claim 1, wherein the brake element (23) is inserted into a radially continuous free space (21) in the stator (11).

3. Electric motor as claimed in claim 2, wherein the free space (21) is axially bounded by one segment (37, 38) at a time.

4. Electric motor as claimed in claim 3, wherein the brake element (23) is supported to be able to swivel around the swivelling axis (28) within limits relative to the stator (11).

5. Electric motor as claimed in claim 4, wherein the brake element (23) is provided laterally with one pin (21) at a time which fits into recesses (35, 36) of the segments (37, 38) and forms the swivelling axis (28).

6. Electric motor as claimed in claim 5, wherein the swivelling axis (28) is parallel to the axis (39) of rotation of the rotor (12).

7. Electric motor as claimed in one of the preceding claims, wherein the brake element (23) consists of material with good magnetic conductivity and forms one pole face (26) which faces the rotor (12) and separating surfaces (24, 25) which face the stator (11).

8. Electric motor as claimed in claim 7, wherein the brake element (23) is formed as a multi-arm lever with one brake arm (29) and one disengagement arm (30), the brake arm (29) being exposed to the braking force and the disengagement arm (30) exerting a disengagement force opposite the braking force on the brake element (23) when current is flowing through the stator winding (20).

9. Electric motor as claimed in claim 8, wherein the brake arm (29) on the inside facing the rotor (12) is provided with a brake lining (31).

10. Electric motor as claimed in claim 9, wherein the separating surface (25) on the

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disengagement arm (30) has a greater radial distance from the swivelling axis (28) than the separating surface (24) on the brake arm 29.

11. Electric motor as claimed in claim 9, wherein the disengagement arm (30) in the area of the pole face (26) forms an annular gap (32) with the rotor (12) which corresponds to a conventional motor air gap.

12. Electric motor as claimed in one of claims 8 to 11, wherein the brake arm (29) is located in front of the swivelling axis (28) viewed in the direction (40) of rotation of the rotor (12), conversely the disengagement arm (30) is located behind the swivelling axis (28).

13. Electric motor as claimed in claim 9, wherein the brake lining (31) has only little or no magnetic conductivity.

14. Electric motor as claimed in claim 13, wherein the brake arm (29) has a plurality of blind holes (41) which are used to hold one compression spring (34) at a time.

15. Electric motor as claimed in claim 14, wherein the compression spring (34) is on the other hand supported on a steady (45') which is attached to the stator (11).

16. Electric motor as claimed in claim 1, wherein in the disengagement arm (30) a short-circuited turn (43) is integrated.

17. Electric motor as claimed in one of the preceding claims, wherein the electric motor (10) has a pole pair consisting of two poles (14) which both hold one brake means (22).

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